



General

Guideline Title

Screening for thyroid dysfunction: U.S. Preventive Services Task Force recommendation statement.

Bibliographic Source(s)

U.S. Preventive Services Task Force. Screening for thyroid dysfunction: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2015 May 5;162(9):641-50. [45 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Screening for thyroid disease: recommendation statement. *Ann Intern Med.* 2004 Jan 20;140(2):125-7. [6 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

The U.S. Preventive Services Task Force (USPSTF) grades its recommendations (A, B, C, D, or I) and identifies the levels of certainty regarding net benefit (High, Moderate, and Low). The definitions of these grades can be found at the end of the "Major Recommendations" field.

Summary of Recommendation and Evidence

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for thyroid dysfunction in nonpregnant, asymptomatic adults. (I statement)

Clinical Considerations

Patient Population Under Consideration

This recommendation applies to nonpregnant, asymptomatic adults.

Suggestions for Practice Regarding the I Statement

Potential Preventable Burden

About 5% of women and 3% of men in the United States have subclinical hypothyroidism. Of note, several studies have shown that about 37% of persons with subclinical hypothyroidism spontaneously revert to a euthyroid state without intervention after several years. About 2% to 5% of

persons with subclinical hypothyroidism develop "overt" thyroid dysfunction.

One retrospective cohort study found that levothyroxine use in persons with subclinical hypothyroidism was associated with lower risk for ischemic heart disease events and overall mortality; however, the USPSTF did not identify any clinical trials that evaluated the causal relationship between treatment and subsequent cardiac events. The USPSTF did not identify any trials or observational studies that evaluated the effects of treatment of "overt" hypothyroidism (with or without symptoms) versus no treatment.

Subclinical hyperthyroidism is present in about 0.7% of the U.S. population and is more common in women than men. One quarter of persons with subclinical hyperthyroidism revert to a euthyroid state without medical intervention over time. An estimated 1% to 2% of persons with thyroid-stimulating hormone (TSH) levels less than 0.1 mIU/L develop "overt" hyperthyroidism (with or without symptoms). Persons with TSH levels between 0.1 and 0.45 mIU/L are unlikely to progress to "overt" hyperthyroidism.

The USPSTF did not identify any studies that evaluated the benefits of treatment of subclinical hyperthyroidism on final health outcomes, such as fractures, cancer, or cardiovascular morbidity or mortality. Except for 1 small ($n=67$) nonrandomized study that examined bone mineral density, no evidence was found on the effects of treatment of "overt" hyperthyroidism (with or without symptoms).

Potential Harms

The harms of treatment of thyroid dysfunction have not been well-studied. The most important potential harms are false-positive results, labeling, and overdiagnosis and overtreatment.

False-positive results occur because TSH secretion is highly variable and sensitive to several common factors, such as acute illness or certain medications. Ascertainment of true- versus false-positive results is further complicated by a lack of consensus on what constitutes a normal reference interval.

Consensus is also lacking on the appropriate point for clinical intervention, particularly for hypothyroidism. No clinical trial data support a treatment threshold to improve clinical outcomes. On the basis of expert opinion, a TSH level greater than 10.0 mIU/L is generally considered the threshold for initiation of treatment (in part because of the higher likelihood of progression to "overt"—even if still asymptomatic—thyroid dysfunction). The decision of whether and when to begin therapy in patients with TSH levels between 4.5 and 10.0 mIU/L is more controversial. A large magnitude of overdiagnosis and overtreatment is a likely consequence of screening for thyroid dysfunction, particularly because the disorder is defined by silent biochemical parameters rather than a set of reliable and consistent clinical symptoms. The high variability of TSH secretion levels and the frequency of reversion to normal thyroid function without treatment underscore the importance of not relying on a single abnormal laboratory value as a basis for diagnosis or the decision to start therapy.

Currently, it is not possible to differentiate persons who will have advancing thyroid dysfunction of clinical importance from those whose TSH levels will remain biochemically stable or even normalize. Treating the latter group (at a minimum) will not lead to benefit, and these persons may experience harms associated with antithyroid medications, ablation therapy, and long-term thyroid hormone therapy.

Current Practice

Although exact estimates are not available for the United States, screening for thyroid dysfunction by primary care providers seems to be a common practice. In the United Kingdom, an estimated 18% to 25% of the adult population receives thyroid function testing each year.

The annual number of dispensed prescriptions of levothyroxine sodium in the United States increased by 42% over a 5-year period, from 50 million in 2006 to 71 million in 2010. In 2013, there were more than 23 million new prescriptions and refills for a single name brand of thyroid hormone in the United States, making it the most commonly prescribed drug in the country.

In 1996, a cross-sectional study of a U.S. population found that 39% of participants with TSH levels between 5.1 and 10.0 mIU/L received treatment. More recent evidence suggests that the median TSH level at initiation of thyroid hormone therapy has decreased over time; a retrospective cohort study in the United Kingdom found that the median TSH level at the time of first levothyroxine prescription decreased from 8.7 to 7.9 mIU/L between 2001 and 2009.

Initiation and use of thyroid hormone therapy seem to be particularly common in older adults. Data from the CHS (Cardiovascular Health Study), a U.S. cohort of nearly 6000 community-dwelling adults aged 65 years or older, showed a steady increase in the overall percentage of older adults receiving thyroid hormone therapy (from 9% in 1989 to 20% in 2006) and a nonlinear probability of initiating levothyroxine therapy based on age; persons aged 85 years or older were more than twice as likely as those aged 65 to 69 years to begin thyroid hormone therapy (hazard ratio [HR], 2.34 [95% confidence interval (CI), 1.43 to 3.85]), independent of race or sex.

Data on the proportion of asymptomatic persons with thyroid dysfunction who receive thyroid hormone therapy are lacking. However, given the

high number of prescriptions for levothyroxine dispensed in the United States and the low prevalence of "overt" hypothyroidism and hyperthyroidism among persons in the general population (0.3% and 0.5%, respectively, only a small fraction of whom are symptomatic), it is reasonable to conclude that many asymptomatic persons receive treatment. Clinicians seem to be treating more persons with thyroid dysfunction, at earlier times after initial diagnosis, and at TSH levels closer to normal.

Assessment of Risk

The most common cause of hypothyroidism in the United States is chronic autoimmune (Hashimoto) thyroiditis. Risk factors for an elevated TSH level include female sex, advancing age, white race, type 1 diabetes, Down syndrome, family history of thyroid disease, goiter, previous hyperthyroidism (possibly due in part to ablation therapy leading to iatrogenic thyroid dysfunction), and external-beam radiation in the head and neck area.

Common causes of hyperthyroidism include Graves disease, Hashimoto thyroiditis, and functional thyroid nodules. Risk factors for a low TSH level include female sex; advancing age; black race; low iodine intake; personal or family history of thyroid disease; and ingestion of iodine-containing drugs, such as amiodarone.

The USPSTF found no direct evidence that treatment of thyroid dysfunction based on risk level alters final health outcomes.

Screening Tests

The serum TSH test is the primary screening test for thyroid dysfunction. Multiple tests should be done over a 3- to 6-month interval to confirm or rule out abnormal findings. Follow-up testing of serum T₄ levels in persons with persistently abnormal TSH levels can differentiate between subclinical (normal T₄ levels) and "overt" (abnormal T₄ levels) thyroid dysfunction.

Screening Interval

The optimal screening interval for thyroid dysfunction (if one exists) is unknown.

Interventions

The principal treatment for hypothyroidism is oral T₄ monotherapy (levothyroxine sodium).

Hyperthyroidism is treated with antithyroid medications (such as methimazole) or nonreversible thyroid ablation therapy (for example, radioactive iodine or surgery). Although definitive data are lacking, treatment is generally recommended for patients with a TSH level that is undetectable or less than 0.1 mIU/L, particularly those with overt Graves disease or nodular thyroid disease. Treatment is typically not recommended for patients with TSH levels between 0.1 and 0.45 mIU/L or when thyroiditis is the cause.

Definitions:

What the USPSTF Grades Mean and Suggestions for Practice

| Grade | Grade Definitions | Suggestions for Practice |
|-------------|--|--|
| A | The USPSTF recommends the service. There is high certainty that the net benefit is substantial. | Offer/provide this service. |
| B | The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. | Offer/provide this service. |
| C | The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small. | Offer/provide this service for selected patients depending on individual circumstances. |
| D | The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. | Discourage the use of this service. |
| I Statement | The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined. | Read the "Clinical Considerations" section of USPSTF Recommendation Statement (see the "Major Recommendations" field). If this service is offered, patients should understand the uncertainty about the balance of benefits and harms. |

| Grade | Grade Definitions | Suggestions for Practice |
|-------|-------------------|--------------------------|
|-------|-------------------|--------------------------|

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The USPSTF defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general primary care population. The USPSTF assigns a certainty level on the basis of the nature of the overall evidence available to assess the net benefit of a preventive service.

| Level of Certainty | Description |
|--------------------|--|
| High | The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies. |
| Moderate | <p>The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as:</p> <ul style="list-style-type: none"> • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence <p>As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.</p> |
| Low | <p>The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:</p> <ul style="list-style-type: none"> • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes <p>More information may allow an estimation of effects on health outcomes.</p> |

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Asymptomatic thyroid dysfunction including:

- Asymptomatic subclinical hypothyroidism and hyperthyroidism
- Asymptomatic "overt" hypothyroidism and hyperthyroidism

Guideline Category

Prevention

Screening

Clinical Specialty

Endocrinology

Family Practice

Internal Medicine

Preventive Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To review the evidence on the benefits and harms of screening for subclinical and "overt" thyroid dysfunction without clinically obvious symptoms, as well as the effects of treatment on intermediate and final health outcomes
- To update the 2004 U.S. Preventive Services Task Force (USPSTF) recommendations

Target Population

Nonpregnant, asymptomatic adults

Interventions and Practices Considered

Screening for thyroid dysfunction in nonpregnant, asymptomatic adults

Major Outcomes Considered

- Key Question No. 1: Does screening for thyroid dysfunction reduce morbidity and mortality?
- Key Question No. 2: What are the harms of screening?
- Key Question No. 3: Does treating screen-detected overt or subclinical thyroid dysfunction improve: a) mortality and morbidity? or b) intermediate outcomes?
- Key Question No. 4: What are the harms of treating thyroid dysfunction detected by screening?

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the Pacific Northwest Evidence-based Practice Center (EPC) for the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Sources and Searches

A research librarian searched MEDLINE, the Cochrane Central Register of Controlled Trials, and the Cochrane Database of Systematic Reviews from 2002 to mid-July 2014 for subclinical hypothyroidism and hyperthyroidism and without a previous date limitation for overt hypothyroidism and hyperthyroidism (see Supplement 2 of the evidence review [see the "Availability of Companion Documents" field]). Additional studies were identified from a review of reference lists of relevant articles and peer-review suggestions.

Study Selection

Two investigators independently evaluated each study at the title or abstract and full-text article stages to determine eligibility for inclusion. They included randomized trials and observational studies of thyroid screening versus no screening in adults (excluding pregnant women) without a history of thyroid dysfunction or obvious goiter, nodules, or symptoms, following the protocol. The reviewers also included studies of treatment versus no treatment in adults with subclinical or overt thyroid dysfunction. Screening was based on thyroid-stimulating hormone (TSH) testing, with follow-up testing of thyroid hormone levels (free thyroxine, with or without triiodothyronine). Studies of patients with subclinical hypothyroidism due to Hashimoto thyroiditis (based on antibody testing) were included if they did not describe enrollment of symptomatic patients. Clinical outcomes were cardiovascular end points (cardiovascular disease, coronary artery disease or congestive heart failure, and atrial fibrillation); fractures; measures of quality of life or cognitive function; and harms, including those related to over-replacement (such as negative effects on bone mineral density or atrial fibrillation). Intermediate outcomes were effects on lipid levels, blood pressure, weight change, and bone mineral density.

The reviewers restricted inclusion to English-language articles and excluded studies published only as abstracts. The literature flow diagram is shown in Supplement 3 of the evidence review.

Number of Source Documents

- Key Question 1: 0 studies
- Key Question 2: 0 studies
- Key Question 3a: 6 subclinical hypothyroidism studies
- Key Question 3b:
 - Subclinical hypothyroidism: 9 studies (in 11 publications)
 - Subclinical hyperthyroidism: 2 studies
- Key Question 4:
 - Subclinical hypothyroidism: 5 studies (in 6 publications)
 - Subclinical hyperthyroidism: 1 study

Note: Some studies are included for more than one Key Question.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Two investigators independently applied U.S. Preventive Services Task Force (USPSTF) criteria to rate the quality of each study as good, fair, or poor. See the "Description of the Methods Used to Analyze the Evidence" field for further information.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the Pacific Northwest Evidence-based Practice Center (EPC) for the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Abstraction and Quality Assessment

One investigator abstracted details about the study design, patient population, setting, screening method, interventions, data analysis, and results, and another investigator verified data abstraction for accuracy. Two investigators independently applied criteria developed by the USPSTF to rate the quality of each study as good, fair, or poor. Discrepancies were resolved through a consensus process. For all studies, the reviewers evaluated applicability to populations likely to be encountered in primary care screening settings.

Data Synthesis and Analysis

The reviewers assessed the aggregate internal validity (quality) of the body of evidence for each key question (good, fair, or poor) using methods developed by the USPSTF, on the basis of aggregate study quality, precision of estimates, consistency of results among studies, and directness of evidence. A meta-analysis was not performed because of the methodological and clinical diversity among the included studies.

Methods Used to Formulate the Recommendations

Balance Sheets

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The U.S. Preventive Services Task Force (USPSTF) systematically reviews the evidence concerning both the benefits and harms of widespread implementation of a preventive service. It then assesses the certainty of the evidence and the magnitude of the benefits and harms. On the basis of this assessment, the USPSTF assigns a letter grade to each preventive service signifying its recommendation about provision of the service (see Table below). An important, but often challenging, step is determining the balance between benefits and harms to estimate "net benefit" (that is, benefits minus harms).

Table 1. U.S. Preventive Services Task Force Recommendation Grid*

| Certainty of Net Benefit | Magnitude of Net Benefit | | | |
|--------------------------|--------------------------|----------|-------|---------------|
| | Substantial | Moderate | Small | Zero/Negative |
| High | A | B | C | D |
| Moderate | B | B | C | D |
| Low | Insufficient | | | |

*A, B, C, D, and I (Insufficient) represent the letter grades of recommendation or statement of insufficient evidence assigned by the USPSTF after assessing certainty and magnitude of net benefit of the service (see the "Rating Scheme for the Strength of the Recommendations" field).

The overarching question that the USPSTF seeks to answer for every preventive service is whether evidence suggests that provision of the service would improve health outcomes if implemented in a general primary care population. For screening topics, this standard could be met by a large randomized, controlled trial (RCT) in a representative asymptomatic population with follow-up of all members of both the group "invited for screening" and the group "not invited for screening."

Direct RCT evidence about screening is often unavailable, so the USPSTF considers indirect evidence. To guide its selection of indirect evidence, the USPSTF constructs a "chain of evidence" within an analytic framework. For each key question, the body of pertinent literature is critically appraised, focusing on the following 6 questions:

1. Do the studies have the appropriate research design to answer the key question(s)?
2. To what extent are the existing studies of high quality? (i.e., what is the internal validity?)
3. To what extent are the results of the studies generalizable to the general U.S. primary care population and situation? (i.e., what is the

external validity?)

4. How many studies have been conducted that address the key question(s)? How large are the studies? (i.e., what is the precision of the evidence?)
5. How consistent are the results of the studies?
6. Are there additional factors that assist the USPSTF in drawing conclusions (e.g., presence or absence of dose–response effects, fit within a biologic model)?

The next step in the USPSTF process is to use the evidence from the key questions to assess whether there would be net benefit if the service were implemented. In 2001, the USPSTF published an article that documented its systematic processes of evidence evaluation and recommendation development. At that time, the USPSTF's overall assessment of evidence was described as good, fair, or poor. The USPSTF realized that this rating seemed to apply only to how well studies were conducted and did not fully capture all of the issues that go into an overall assessment of the evidence about net benefit. To avoid confusion, the USPSTF has changed its terminology. Whereas individual study quality will continue to be characterized as good, fair, or poor, the term certainty will now be used to describe the USPSTF's assessment of the overall body of evidence about net benefit of a preventive service and the likelihood that the assessment is correct. Certainty will be determined by considering all 6 questions listed above; the judgment about certainty will be described as high, moderate, or low.

In making its assessment of certainty about net benefit, the evaluation of the evidence from each key question plays a primary role. It is important to note that the USPSTF makes recommendations for real-world medical practice in the United States and must determine to what extent the evidence for each key question—even evidence from screening RCTs or treatment RCTs—can be applied to the general primary care population. Frequently, studies are conducted in highly selected populations under special conditions. The USPSTF must consider differences between the general primary care population and the populations studied in RCTs and make judgments about the likelihood of observing the same effect in actual practice.

It is also important to note that one of the key questions in the analytic framework refers to the potential harms of the preventive service. The USPSTF considers the evidence about the benefits and harms of preventive services separately and equally. Data about harms are often obtained from observational studies because harms observed in RCTs may not be representative of those found in usual practice and because some harms are not completely measured and reported in RCTs.

Putting the body of evidence for all key questions together as a chain, the USPSTF assesses the certainty of net benefit of a preventive service by asking the 6 major questions listed above. The USPSTF would rate a body of convincing evidence about the benefits of a service that, for example, derives from several RCTs of screening in which the estimate of benefits can be generalized to the general primary care population as "high" certainty (see the "Rating Scheme for the Strength of Recommendations" field). The USPSTF would rate a body of evidence that was not clearly applicable to general practice or has other defects in quality, research design, or consistency of studies as "moderate" certainty. Certainty is "low" when, for example, there are gaps in the evidence linking parts of the analytic framework, when evidence to determine the harms of treatment is unavailable, or when evidence about the benefits of treatment is insufficient. Table 4 in the methodology document listed below (see the "Availability of Companion Documents" field) summarizes the current terminology used by the USPSTF to describe the critical assessment of evidence at all 3 levels: individual studies, key questions, and overall certainty of net benefit of the preventive service.

Sawaya GF, Guirguis-Blake J, LeFevre M, Harris R, Petitti D; U.S. Preventive Services Task Force. Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. *Ann Intern Med.* 2007;147(12):871-875. [5 references].

I Statements

For I statements, the USPSTF has a plan to commission its Evidence-based Practice Centers to collect information in 4 domains pertinent to clinical decisions about prevention and to report this information routinely. This plan is described in the paper: Petitti DB et al. Update on the methods of the U.S. Preventive Services Task Force: insufficient evidence. *Ann Intern Med.* 2009;150:199-205. www.annals.org

The first domain is potential preventable burden of suffering from the condition. When evidence is insufficient, provision of an intervention designed to prevent a serious condition (such as dementia) might be viewed more favorably than provision of a service designed to prevent a condition that does not cause as much suffering (such as rash). The USPSTF recognized that "burden of suffering" is subjective and involves judgment. In clinical settings, it should be informed by patient values and concerns.

The second domain is potential harm of the intervention. When evidence is insufficient, an intervention with a large potential for harm (such as major surgery) might be viewed less favorably than an intervention with a small potential for harm (such as advice to watch less television). The USPSTF again acknowledges the subjective nature and the difficulty of assessing potential harms: for example, how bad is a "mild" stroke?

The third domain is cost—not just monetary cost, but opportunity cost, in particular the amount of time a provider spends to provide the service,

the amount of time the patient spends to partake of it, and the benefits that might derive from alternative uses of the time or money for patients, clinicians, or systems. Consideration of clinician time is especially important for preventive services with only insufficient evidence because providing them could "crowd out" provision of preventive services with proven value, services for conditions that require immediate action, or services more desired by the patient. For example, a decision to routinely inspect the skin could take up the time available to discuss smoking cessation, or to address an acute problem or a minor injury that the patient considers important.

The fourth domain is current practice. This domain was chosen because it is important to clinicians for at least 2 reasons. Clinicians justifiably fear that not doing something that is done on a widespread basis in the community may lead to litigation. More important, addressing patient expectations is a crucial part of the clinician–patient relationship in terms of building trust and developing a collaborative therapeutic relationship. The consequences of not providing a service that is neither widely available nor widely used are less serious than not providing a service accepted by the medical profession and thus expected by patients. Furthermore, ingrained care practices are difficult to change, and efforts should preferentially be directed to changing those practices for which the evidence to support change is compelling.

Although the reviewers did not explicitly recognize it when these domains were chosen, the domains all involve consideration of the potential consequences—for patients, clinicians, and systems—of providing or not providing a service. Others writing about medical decision making in the face of uncertainty have suggested that the consequences of action or inaction should play a prominent role in decisions.

Rating Scheme for the Strength of the Recommendations

What the U.S. Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

| Grade | Grade Definitions | Suggestions for Practice |
|----------------|---|--|
| A | The USPSTF recommends the service. There is high certainty that the net benefit is substantial. | Offer/provide this service. |
| B | The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. | Offer/provide this service. |
| C | The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small. | Offer/provide this service for selected patients depending on individual circumstances. |
| D | The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. | Discourage the use of this service. |
| I Statement | The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined. | Read the "Clinical Considerations" section of USPSTF Recommendation Statement (see the "Major Recommendations" field). If offered, patients should understand the uncertainty about the balance of benefits and harms. |

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The USPSTF defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

| Level of Certainty | Description |
|--------------------|--|
| High | The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies. |
| Moderate | The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: <ul style="list-style-type: none"> • The number, size, or quality of individual studies |

| Level of Certainty | Description |
|--------------------|--|
| | <ul style="list-style-type: none"> • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence <p>As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.</p> |
| Low | <p>The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:</p> <ul style="list-style-type: none"> • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes <p>More information may allow an estimation of effects on health outcomes.</p> |

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Comparison with Guidelines from Other Groups

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Peer Review. Before the U.S. Preventive Services Task Force (USPSTF) makes its final determinations about recommendations on a given preventive service, the Evidence-based Practice Center and the Agency for Healthcare Research and Quality send the draft evidence review to 4 to 6 external experts and to Federal agencies and professional and disease-based health organizations with interests in the topic. The experts are asked to examine the review critically for accuracy and completeness and to respond to a series of specific questions about the document. The draft evidence review is also posted on the USPSTF Web site for public comment. After assembling these external review comments and documenting the proposed response to key comments, the topic team presents this information to the USPSTF in memo form. In this way, the USPSTF can consider these external comments before it votes on its recommendations about the service. Draft recommendation statements are then circulated for comment among reviewers representing professional societies, voluntary organizations, and Federal agencies, as well as posted on the USPSTF Web site for public comment. These comments are discussed before the final recommendations are confirmed.

Response to Public Comment. A draft version of this recommendation statement was posted for public comment on the USPSTF Web site from 28 October to 24 November 2014. In response to the comments received, the USPSTF clarified some of the terminology used in this statement (for example, "reference interval" instead of "reference range" and "Hashimoto thyroiditis" instead of "Hashitoxicosis") and added a reference for initiation and use of thyroid hormone therapy in older adults. The USPSTF also clarified that the systematic evidence review searched for studies on the treatment of thyroid dysfunction that used placebo or no treatment as the comparator. See the original guideline document for more discussion of the USPSTF response to public comment.

Comparison with Guidelines from Other Groups. Recommendations for screening from the following groups were discussed: the American Thyroid Association, the American Association of Clinical Endocrinologists, the Association for Clinical Biochemistry (British), the British Thyroid Association, the British Thyroid Foundation, and the American Academy of Family Physicians.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendations is not specifically stated.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Benefits of Early Detection and Treatment

The U.S. Preventive Services Task Force (USPSTF) found inadequate evidence that screening for thyroid dysfunction in nonpregnant, asymptomatic adults leads to clinically important benefits. In particular, the USPSTF found inadequate evidence to determine whether screening for thyroid dysfunction reduces cardiovascular disease or related morbidity and mortality.

The USPSTF found adequate evidence that screening for and treatment of thyroid dysfunction in nonpregnant, asymptomatic adults does not improve quality of life or provide clinically meaningful improvements in blood pressure, body mass index (BMI), bone mineral density, or lipid levels. It also does not improve cognitive function, at least through the duration of available trials (≥ 1 to 2 years).

Potential Harms

Harms of Early Detection and Treatment

The U.S. Preventive Services Task Force (USPSTF) found inadequate evidence on the harms of screening for and treatment of thyroid dysfunction. Indirect evidence points to the likelihood of important and frequent harms associated with screening in asymptomatic persons. Foremost among these are frequent false-positive results; the psychological effects of labeling; and a large degree of over diagnosis and overtreatment of biochemically defined abnormal thyroid-stimulating hormone (TSH) levels (with or without abnormal serum thyroxine [T_4] levels) that may revert to normal, not progress, or never result in health problems even if they do progress, particularly in persons with TSH levels less than 10 mIU/L.

Qualifying Statements

Qualifying Statements

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific preventive care services for patients without related signs or symptoms.
- It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.
- The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.
- Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality (AHRQ) or the U.S. Department of Health and Human Services.

Implementation of the Guideline

Description of Implementation Strategy

The experiences of the first and second U.S. Preventive Services Task Force (USPSTF), as well as that of other evidence-based guideline efforts, have highlighted the importance of identifying effective ways to implement clinical recommendations. Practice guidelines are relatively weak tools for changing clinical practice when used in isolation. To effect change, guidelines must be coupled with strategies to improve their acceptance and

feasibility. Such strategies include enlisting the support of local opinion leaders, using reminder systems for clinicians and patients, adopting standing orders, and audit and feedback of information to clinicians about their compliance with recommended practice.

In the case of preventive services guidelines, implementation needs to go beyond traditional dissemination and promotion efforts to recognize the added patient and clinician barriers that affect preventive care. These include clinicians' ambivalence about whether preventive medicine is part of their job, the psychological and practical challenges that patients face in changing behaviors, lack of access to health care or of insurance coverage for preventive services for some patients, competing pressures within the context of shorter office visits, and the lack of organized systems in most practices to ensure the delivery of recommended preventive care.

Dissemination strategies have changed dramatically in this age of electronic information. While recognizing the continuing value of journals and other print formats for dissemination, the USPSTF will make all its products available through its [Web site](#) . The combination of electronic access and extensive material in the public domain should make it easier for a broad audience of users to access USPSTF materials and adapt them for their local needs. Online access to USPSTF products also opens up new possibilities for the appearance of the annual, pocket-size Guide to Clinical Preventive Services.

To be successful, approaches for implementing prevention have to be tailored to the local level and deal with the specific barriers at a given site, typically requiring the redesign of systems of care. Such a systems approach to prevention has had notable success in established staff-model health maintenance organizations, by addressing organization of care, emphasizing a philosophy of prevention, and altering the training and incentives for clinicians. Staff-model plans also benefit from integrated information systems that can track the use of needed services and generate automatic reminders aimed at patients and clinicians, some of the most consistently successful interventions. Information systems remain a major challenge for individual clinicians' offices, however, as well as for looser affiliations of practices in network-model managed care and independent practice associations, where data on patient visits, referrals, and test results are not always centralized.

Implementation Tools

Foreign Language Translations

Mobile Device Resources

Patient Resources

Pocket Guide/Reference Cards

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

U.S. Preventive Services Task Force. Screening for thyroid dysfunction: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2015 May 5;162(9):641-50. [45 references] [PubMed](#)

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

1996 (revised 2015 May 5)

Guideline Developer(s)

U.S. Preventive Services Task Force - Independent Expert Panel

Guideline Developer Comment

The U.S. Preventive Services Task Force (USPSTF) is a federally-appointed panel of independent experts. Conclusions of the USPSTF do not necessarily reflect policy of the U.S. Department of Health and Human Services or its agencies.

Source(s) of Funding

The U.S. Preventive Services Task Force (USPSTF) is an independent, voluntary body. The U.S. Congress mandates that the Agency for Healthcare Research and Quality support the operations of the USPSTF.

Guideline Committee

U.S. Preventive Services Task Force (USPSTF)

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**Members of the Task Force at the time this recommendation was finalized. For a list of current Task Force members, go to www.uspreventiveservicestaskforce.org/Page/Name/our-members .*

Financial Disclosures/Conflicts of Interest

The U.S. Preventive Services Task Force (USPSTF) has an explicit policy concerning conflict of interest. All members disclose at each meeting if they have a significant financial, professional/business, or intellectual conflict for each topic being discussed. USPSTF members with conflicts may be recused from discussing or voting on recommendations about the topic in question.

Dr. Gillman reports royalties from UpToDate and Cambridge University Press outside the submitted work. Authors not named here have disclosed no conflicts of interest. Authors followed the policy regarding conflicts of interest described at

<http://www.uspreventiveservicestaskforce.org/Page/Name/methods-and-processes> . Disclosures can be viewed at www.acponline.org/authors/icnje/ConflictOfInterestForms.do?msNum=M15-0483 .

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Screening for thyroid disease: recommendation statement. Ann Intern Med. 2004 Jan 20;140(2):125-7. [6 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: Available from the [Annals of Internal Medicine Web site](#) .

Availability of Companion Documents

The following are available:

Evidence Reviews:

- Ruggie JB, Bougatsos C, Chou R. Screening and treatment of thyroid dysfunction: an evidence review for the U.S. Preventive Services Task Force. Ann Intern Med. 2015 Jan 6;162(1):35-45.
- Ruggie JB, Bougatsos C, Chou R. Screening for and treatment of thyroid dysfunction: an evidence review for the U.S. Preventive Services Task Force. Evidence synthesis No. 118. AHRQ Publication No. 15-05217-EF-1. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2014 Oct. 72 p.

Electronic copies: Available from the [U.S. Preventive Services Task Force \(USPSTF\) Web site](#) .

Background Articles:

- Barton MB et al. How to read the new recommendation statement: methods update from the U.S. Preventive Services Task Force. Ann Intern Med 2007;147:123-127.
- Guirguis-Blake J et al. Current processes of the U.S. Preventive Services Task Force: refining evidence-based recommendation development. Ann Intern Med 2007;147:117-122.
- Sawaya GF et al. Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med 2007;147:871-875.
- Petitti DB et al. Update on the methods of the U.S. Preventive Services Task Force: insufficient evidence. Ann Intern Med. 2009;150:199-205.

Electronic copies: Available from the [USPSTF Web site](#) .

The following are also available:

- Ruggie JB, Bougatsos C, Chou R. Screening and treatment of thyroid dysfunction: an evidence review for the U.S. Preventive Services Task Force. Supplements 1-4. Ann Intern Med. 2015 Jan 6;162(1):35-45. Electronic copies: Available from the [Annals of Internal Medicine Web site](#) .

- Thyroid dysfunction: screening. Clinical summary of U.S. Preventive Services Task Force recommendation. 2015. 1 p. Electronic copies: Available from the [USPSTF Web site](#) .
- A continuing medical education (CME) activity is available from the [Annals of Internal Medicine Web site](#) .
- The guide to clinical preventive services, 2014. Recommendations of the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2014. 144 p. Electronic copies: Available from the [AHRQ Web site](#) .

The [Electronic Preventive Services Selector \(ePSS\)](#) is an application designed to provide primary care clinicians and health care teams timely decision support regarding appropriate screening, counseling, and preventive services for their patients. It is based on the current, evidence-based recommendations of the USPSTF and can be searched by specific patient characteristics, such as age, sex, and selected behavioral risk factors.

Patient Resources

The following are available:

- Screening for thyroid dysfunction. Understanding task force recommendations. Consumer fact sheet. Rockville (MD): U.S. Preventive Services Task Force. 2015 Mar. 4 p. Electronic copies: Available from the [U.S. Preventive Services Task Force \(USPSTF\) Web site](#) .
- Screening for thyroid dysfunction: U.S. Preventive Services Task Force recommendation statement. Summaries for patients. *Ann Intern Med*. 2015 May 5;162(9):I-32. Electronic copies: Available from the [Annals of Internal Medicine Web site](#) .
- Women: stay healthy at any age. 2014 update. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ). AHRQ Pub. No. 14-IP007-A. 2014 Mar. 5 p. Electronic copies: Available in [English](#) and [Spanish](#) from the Agency for Healthcare Research and Quality (AHRQ) Web site.
- Men: stay healthy at any age. 2014 update. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ). AHRQ Pub. No. 14-IP006-A. 2014 Mar. 5 p. Electronic copies: Available in [English](#) and [Spanish](#) from the AHRQ Web site.
- Women: stay healthy at 50+. 2014 update. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ). AHRQ Pub. No. 14-IP002-A. 2014 Mar. 5 p. Electronic copies: Available in [English](#) and [Spanish](#) from the AHRQ Web site.
- Men: stay healthy at 50+. 2014 update. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ). AHRQ Pub. No. 14-IP009-A. 2014 Mar. 5 p. Electronic copies: Available in [English](#) and [Spanish](#) from the AHRQ Web site.

Print copies: Available in English and Spanish from the AHRQ Publications Clearinghouse. For more information, go to <http://www.ahrq.gov/research/publications/index.html> or call 1-800-358-9295  (U.S. only).

Myhealthfinder is a tool that provides personalized recommendations for clinical preventive services specific to the user's age, gender, and pregnancy status. It features evidence-based recommendations from the USPSTF and is available at www.healthfinder.gov

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Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This NGC summary was completed by ECRI on June 30, 1998. The information was verified by the guideline developer on December 1, 1998. This summary was updated by ECRI on January 12, 2004. The information was verified by the guideline developer on January 17, 2004. This summary was updated by ECRI Institute on June 8, 2015. The updated information was verified by the guideline developer on July 20, 2015.

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